

## **REMARKS / ARGUMENTS**

### **1) Rejection of claim 21 under 35 USC 101**

In the Office Action, the Examiner has rejected claim 21 under 35 USC 101 as being directed to non-statutory subject matter. More specifically, the Examiner asserts that a signal *per se* is non-statutory subject matter.

To begin with, Applicant notes that in the first Office Action mailed September 30, 2003, the Examiner originally allowed claim 21. The allowability of this claim was subsequently acknowledged by Applicant in the Response to the Office Action filed January 20, 2004. In the present Office Action, it initially appears on pages 2-3 that the Examiner has now decided to reject claim 21 under grounds of non-statutory subject matter. However, the rejection on pages 2-3 conflicts with the ensuing statement on page 9 of the Office Action, indicating the allowability of claim 21. As such, Applicant is understandably unclear of the position being taken by the Examiner with regard to claim 21.

Nevertheless, no matter what the Examiner's position and in the interest of advancing prosecution, Applicant respectfully submits that claim 21, which is directed to "A communications signal embodied in a transmission medium", is in fact statutory subject matter. It is clear from the preamble of the claim that the communications signal is "embodied in a transmission medium" and, as such, is not as the Examiner sets forth, "a signal *per se*". Applicant respectfully submits that, "A communications signal embodied in a transmission medium" is an article of manufacture, which is indubitably patentable subject matter under 35 USC 101. The Examiner is therefore respectfully requested to withdraw his rejection of claim 21.

## 2) Rejection of claims 1-20, 39-43, 49, 50-52 and 54 under 35 USC 103

In the Office Action, the Examiner has rejected claims 1-20, 39-43, 49, 50-52 and 54 under 35 USC 103(a) as being unpatentable over Petsko et al. U.S. Patent No. 6,292,516 (hereinafter referred to as "Petsko") in view of Tsuda U.S. Patent No. 5,619,507 (hereinafter referred to as "Tsuda"). As set forth herein below, Applicant respectfully traverses this rejection and submits that claims 1-20, 39-43, 49, 50-52 and 54 are in allowable form.

### Independent claim 1

The Examiner's attention is directed to the following emphasized limitations of claim 1:

"A communications signal [...], comprising:

recurrent wrapper bursts, each wrapper burst comprising one or more wrapper symbols, **each of which corresponds to an information bit;**

wherein each wrapper symbol is characterized by a signal level transition pattern, **said signal level transition pattern being either a first pattern or a second pattern depending on the logic value of the respective information bit;**  
[...]."

Applicant respectfully submits that neither Petsko nor Tsuda discloses, teaches or suggests the above-emphasized limitations of claim 1. Specifically, the cited references do not teach or suggest that each wrapper symbol "corresponds to an information bit" and that the signal level transition pattern characterizing each wrapper symbol is "either a first pattern or a second pattern depending on the logic value of the respective information bit."

Petsko describes a signal in which test words are inserted between adjacent data fragments. The test words are used to provide an indication of the reception quality of each antenna capable of receiving the signal. As stated in column 5, lines 26-30,

“Each test word is divided into  $n$  different ANT fields. Each ANT field includes a predefined test pattern of bits (or symbols) which is received by the receiving device using a different respective diversity antenna.” However, Petsko only describes the test pattern as being either arbitrary, or the CRC value for the fragment immediately preceding the test word (see column 10, lines 39-43). As such, the cited reference certainly does not teach or suggest that each symbol, i.e. each predefined test pattern of bits, “corresponds to an information bit”. It is therefore incorrect for the Examiner to claim otherwise, as he has done on page 4, line 3 of the Office Action.

Furthermore, regardless of whether they are arbitrary or CRC values, the test patterns in Petsko are not characterized by a “signal level transition pattern being either a first pattern or a second pattern depending on the logic value of the respective information bit”. Rather, notwithstanding that there is no corresponding information bit in Petsko and therefore no “logic value of the respective information bit”, Petsko uses the same test pattern in each of the ANT fields of a particular test word (see column 8, lines 6-7). Thus, there is a single, identical test pattern being used and no possibility of a “signal level transition pattern being either a first pattern or a second pattern”. The Examiner himself admits on page 4 of the Office Action that Petsko does not disclose this limitation.

In view of the above, it should be appreciated that Petsko cannot be said to disclose, teach or suggest at least two of the above-emphasized limitations of claim 1.

Moreover, Applicant respectfully submits that these missing limitations are also not taught or suggested by Tsuda. Tsuda describes a frame synchronizing circuit for detecting a unique word only when a signal is being received and has been detected. A unique word is included in each frame of 240 symbols for the purposes of frame synchronization. As shown in Figure 2, four frames constitute a transmission unit, such that four unique words UW1-UW4 are periodically provided within a set of 960 symbols. Nowhere in Tsuda is it taught or suggested that each of these unique words “corresponds to an information bit”. In addition, Tsuda makes

absolutely no mention of each of the unique words UW1-UW4 being characterized by a signal level pattern having “either a first pattern or a second pattern depending on the logic value of the respective information bit”.

For the above reasons, it is respectfully submitted that at least two limitations of claim 1 are neither taught nor suggested by the cited art, whether taken severally or in combination. Therefore, Applicant respectfully submits that there is at least one criterion, required for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j), which is in this case not satisfied<sup>1</sup>. The Examiner is thus respectfully requested to withdraw his rejection of claim 1.

#### Dependent claims 2-9

Claims 2-9 depend either directly or indirectly on claim 1 and therefore include all of the limitations of claim 1. Hence, for the same reasons as those set forth herein above in respect of claim 1, Applicant respectfully submits that claims 2-9 are in allowable form and, thus, the Examiner is respectfully requested to withdraw his rejection of claims 2-9.

#### Independent claim 10

The Examiner's attention is directed to the following limitations of claim 10:

“A communications signal [...], comprising:

[...]

wherein each wrapper segment comprises a contiguity of signal level sequences;

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<sup>1</sup> For the Examiner to establish a *prima facie* case of obviousness, three criteria must be considered: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings, (2) there must be a reasonable expectation of success, and (3) the prior art references must teach or suggest all of the claim limitations. MPEP §§ 706.02(j), 2142 (8th ed.).

wherein each signal level sequence is characterized by an average signal level indicative of the binary value of a bit of an information bit stream;

[...].”

Applicant respectfully submits that neither Petsko nor Tsuda discloses, teaches or suggests the above-emphasized limitation of claim 10. Specifically, the cited references do not teach or suggest that each wrapper symbol has a contiguity of signal level sequences, each “characterized by an average signal level indicative of the binary value of a bit of an information bit stream”.

As already described with respect to claim 1, Petsko relates to a signal in which test words are inserted between adjacent data fragments. The test words are used to provide an indication of the reception quality of each antenna capable of receiving the signal. As stated in column 5, lines 26-30, “Each test word is divided into n different ANT fields. Each ANT field includes a predefined test pattern of bits (or symbols) which is received by the receiving device using a different respective diversity antenna.” Petsko describes the test pattern as being either arbitrary, or the CRC value for the fragment immediately preceding the test word (see column 10, lines 39-43). However, Petsko is completely silent regarding the average signal level that may characterize a test pattern, and is just as silent on the relationship that the average signal level of a test pattern may have with respect to the binary value of a bit of an information stream. As such, the cited reference cannot be held to teach or suggest that the signal level sequence in each predefined test pattern of bits is “characterized by an average signal level indicative of the binary value of a bit of an information bit stream”.

In view of the above, it should be appreciated that Petsko cannot be said to disclose, teach or suggest at least one of the above-emphasized limitations of claim 10.

Moreover, Applicant respectfully submits that the above limitation is also missing from Tsuda. As stated before, Tsuda describes a frame synchronizing circuit for detecting a unique word only when a signal is being received and has been

detected. A unique word is included in each frame of 240 symbols for the purposes of frame synchronization. As shown in Figure 2, four frames constitute a transmission unit, such that four unique words UW1-UW4 are periodically provided within a set of 960 symbols. However, and similarly to Petsko, Tsuda is completely silent regarding the average signal level that may characterize a test pattern, and is just as silent on the relationship that the average signal level of a test pattern may have with respect to the binary value of a bit of an information stream. As such, Applicant respectfully submits that the cited reference cannot be held to teach or suggest that the signal level sequence in each predefined test pattern of bits is "characterized by an average signal level indicative of the binary value of a bit of an information bit stream".

For the above reasons, it is respectfully submitted that at least one limitation of claim 10 is neither taught nor suggested by the cited art, whether taken severally or in combination. Therefore, Applicant respectfully submits that there is at least one criterion, required for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j), which is in this case not satisfied. The Examiner is thus respectfully requested to withdraw his rejection of claim 10.

#### Dependent claims 11 and 17-19

Claims 11 and 17-19 depend directly on claim 10 and therefore include all of the limitations of claim 10. Hence, for the same reasons as those set forth herein above in respect of claim 10, Applicant respectfully submits that claims 11 and 17-19 are in allowable form and, therefore, the Examiner is respectfully requested to withdraw his rejection of claims 11 and 17-19.

### Dependent claim 12

Claim 12 depends directly on claim 10 and therefore includes all of the limitations of claim 10. Hence, for the same reasons as those set forth herein above in respect of claim 10, Applicant respectfully submits that claim 12 is in allowable form.

In addition, the Examiner's attention is directed to the following additional limitation of claim 12:

"wherein each signal level sequence is either a first pattern or a second pattern, depending on the binary value of the respective bit of the information bit stream."

It is respectfully submitted that Petsko in view of Tsuda does not teach or suggest the above additional limitation of claim 12. Specifically, as already argued above in respect of claim 1, Applicant has shown that neither Petsko nor Tsuda teaches or suggests a communications signal comprising wrapper segments, each characterized by a signal level transition pattern that is "either a first pattern or a second pattern depending on the binary value of the respective bit of the information bit stream".

Thus, notwithstanding the dependency of claim 12 on claim 10, Applicant respectfully submits that at least one additional limitation of claim 12 is neither taught nor suggested by the cited art, whether taken severally or in combination. As such, it is respectfully submitted that claim 12 are in allowable form and, therefore, the Examiner is respectfully requested to withdraw his rejection of claim 12.

### Dependent claims 13-16

Claims 13-16 depend either directly indirectly on claim 10 and therefore include all of the limitations of claim 10. Hence, for the same reasons as those set forth herein above in respect of claim 10, Applicant respectfully submits that claims 13-16 are in allowable form.

In addition, it is respectfully submitted that Petsko in view of Tsuda does not teach or suggest the additional limitations of claims 13-16. As already set forth above with respect to claim 1, Petsko does not teach "first and second patterns", but simply one test pattern that is identical for each ANT field in a test word, and therefore cannot possibly teach any of the limitations in claims 13-16 which relate to "first and second patterns". Moreover, as already set forth above with respect to claim 1, Tsuda does not teach or suggest a unique word being "either a first pattern or a second pattern", and therefore also cannot teach any of the additional limitations in claims 13-16 relating to "first and second patterns".

Specifically, neither of the cited references teaches that "the first and second patterns are complementary", "each of the first and second patterns has at least one rising edge and at least one falling edge", "the first pattern has multiple substantially evenly distributed pulses" or "the second pattern has multiple substantially evenly distributed recesses".

Thus, notwithstanding the dependency of claims 13-16 on claim 10, Applicant respectfully submits that at least one additional limitation in each of claims 13-16 is neither taught nor suggested by the cited art, whether taken severally or in combination. As such, it is respectfully submitted that claims 13-16 are in allowable form and the Examiner is therefore respectfully requested to withdraw his rejection of claims 13-16.

#### Independent claim 20

The Examiner's attention is directed to the following emphasized limitations of claim 20:

"A communications signal [...], comprising:

alternating payload and wrapper segments, each wrapper segment consisting of a concatenation of binary signal level patterns;



wherein each binary signal level pattern is associated with a bit of an information bit stream;

**wherein each binary signal level pattern is either a first pattern or a second pattern, the first and second patterns being associated with respective ones of two possible logic values for a bit in the information bit stream;**

**wherein the first pattern consists mostly of a low signal level and partly of a high signal level; and**

**wherein the second pattern consists mostly of the high signal level and partly of the low signal level."**

Applicant respectfully submits that neither Petsko nor Tsuda discloses, teaches or suggests the above-emphasized limitation of claim 20. As already set forth with respect to claim 1, Petsko describes a test pattern as being either arbitrary, or the CRC value for the fragment immediately preceding the test word (see column 10, lines 39-43). Regardless of whether they are arbitrary or CRC values, the test patterns in Petsko are not binary signal level patterns "associated with a bit of an information bit stream" where "each binary signal level pattern is either a first pattern or a second pattern, the first pattern and second patterns being associated with respective ones of two possible logic values for a bit in the information bit stream". Rather, notwithstanding that there is no associated "information bit stream" in Petsko and therefore no "logic value for a bit in the information bit stream", Petsko uses the same test pattern in each of the ANT fields of a particular test word (see column 8, lines 6-7). Thus, there is a single, identical test pattern being used and no possibility of a binary signal level pattern being "either a first pattern or a second pattern, the first pattern and second patterns being associated with respective ones of two possible logic values for a bit in the information bit stream".

Moreover, since Petsko does not teach or suggest such a first and second pattern, it is clear that any further elaboration on the signal level patterns cannot be taught or suggested by the reference. In particular, Applicant respectfully submits that Petsko is completely silent regarding how "the first pattern consists mostly of a low signal

level and partly of a high signal level” and “the second pattern consists mostly of the high signal level and partly of the low signal level”.

In view of the above, it should be appreciated that Petsko cannot be said to disclose, teach or suggest at least three of the above-emphasized limitations of claim 20.

Moreover, Applicant respectfully submits that these missing limitations are also not taught or suggested by Tsuda. Nowhere in Tsuda is it taught or suggested that each of the unique words UW1-UW4 are “associated with a bit of an information bit stream” where “each binary signal level pattern is either a first pattern or a second pattern, the first pattern and second patterns being associated with respective ones of two possible logic values for a bit in the information bit stream”, “the first pattern consists mostly of a low signal level and partly of a high signal level” and “the second pattern consists mostly of the high signal level and partly of the low signal level”.

For the above reasons, it is respectfully submitted that at least three limitations of claim 20 are neither taught nor suggested by the cited art, whether taken severally or in combination. Therefore, Applicant respectfully submits that there is at least one criterion, required for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j), which is in this case not satisfied. The Examiner is thus respectfully requested to withdraw his rejection of claim 20.

#### Independent claim 39

The Examiner’s attention is directed to the following limitations of claim 39:

“A method [...], comprising the steps of:

[...]

wherein the second transforming step includes mapping each overhead bit into a wrapper symbol which is represented by either a first signal level transition pattern or a second signal level transition pattern depending on the logical value of the overhead bit; and

[...].”

Applicant respectfully submits that neither Petsko nor Tsuda discloses, teaches or suggests the above limitations of claim 1. Specifically, the cited references do not teach or suggest “mapping each overhead bit into a wrapper symbol”, where each wrapper symbol “is represented by either a first signal level transition pattern or a second signal level transition pattern depending on the logical value of the overhead bit”.

As already described with respect to claim 1, Petsko relates to a signal in which test words are inserted between adjacent data fragments. In particular, Petsko describes a test pattern as being either arbitrary, or the CRC value for the fragment immediately preceding the test word (see column 10, lines 39-43). However, regardless of whether they are arbitrary or CRC values, the cited reference does not teach or suggest that “each overhead bit is mapped into a wrapper symbol”, where each wrapper symbol “is represented by either a first signal level transition pattern or a second signal level transition pattern depending on the logical value of the overhead bit”. Rather, Petsko uses the same test pattern in each of the ANT fields of a particular test word (see column 8, lines 6-7). Thus, there is a single, identical test pattern being used in Petsko and no possibility of a “wrapper symbol which is represented by either a first signal level transition pattern or a second signal level transition pattern depending on the logical value of the overhead bit”.

Moreover, Applicant respectfully submits that the above limitations are also missing from Tsuda. As already described with respect to claim 1, Tsuda relates to a frame synchronizing circuit for detecting a unique word only when a signal is being received and has been detected. Nowhere in Tsuda is it taught or suggested that each wrapper symbol, i.e. each unique word, is mapped from an overhead bit. In addition, Tsuda makes absolutely no mention of each wrapper symbol, i.e. each unique words UW1-UW4, being “represented by either a first signal level transition pattern or a second signal level transition pattern depending on the logical value of the overhead bit”.

For the above reasons, it is respectfully submitted that at least one limitation of claim 39 is neither taught nor suggested by the cited art, whether taken severally or in combination. Therefore, Applicant respectfully submits that there is at least one criterion, required for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j), which is in this case not satisfied. The Examiner is thus respectfully requested to withdraw his rejection of claim 39.

Dependent claims 40-43

Claims 40-43 depend either directly or indirectly on claim 39 and therefore include all of the limitations of claim 39. Hence, for the same reasons as those set forth herein above in respect of claim 39, Applicant respectfully submits that claims 40-43 are in allowable form and, thus, the Examiner is respectfully requested to withdraw his rejection of claims 40-43.

Independent claim 49

The Examiner's attention is directed to the following limitations of claim 49:

"A system [...], comprising:

[...]

wherein the second transforming step includes mapping each overhead bit into a wrapper symbol which is represented by either a first signal level transition pattern or a second signal level transition pattern depending on the logical value of the overhead bit; and

[...]"

Claim 49 contains language similar to that of claim 39. Thus, for the same reasons set forth herein above in respect to claim 39, it is Applicant's respectful submission that independent claim 49 comprises at least one limitation missing from the combination of Petsko and Tsuda, namely "mapping each overhead bit into a wrapper symbol", where each wrapper symbol "is represented by either a first signal

level transition pattern or a second signal level transition pattern depending on the logical value of the overhead bit".

In light of the above, it is respectfully submitted that at least one limitation of claim 49 is neither taught nor suggested by the cited art, whether taken severally or in combination. Therefore, Applicant respectfully submits that there is at least one criterion, required for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j), which is in this case not satisfied. The Examiner is thus respectfully requested to withdraw his rejection of claim 49.

Dependent claims 50-52

Claims 50-52 depend either directly or indirectly on claim 49 and therefore include all of the limitations of claim 49. Hence, for the same reasons as those set forth herein above in respect of claim 49, Applicant respectfully submits that claims 50-52 are in allowable form and, therefore, the Examiner is respectfully requested to withdraw his rejection of claims 50-52.

Independent claim 54

The Examiner's attention is directed to the following emphasized limitations of claim 54:

**"A wrapper symbol coder for mapping each of a plurality of overhead bits into a wrapper symbol, the coder being operable to produce either a first signal level transition pattern or a second signal level transition pattern depending on the logical value of each overhead bit, wherein the first and second signal level transition patterns are each characterized by having a distinct average signal level and are each further characterized by at least one signal level transition."**

Claim 54 contains language similar to that of claim 39. Thus, for the same reasons set forth herein above in respect to claim 39, it is Applicant's respectful submission that independent claim 54 comprises at least one limitation missing from the

combination of Petsko and Tsuda, namely "mapping each overhead bit into a wrapper symbol", where each wrapper symbol "is represented by either a first signal level transition pattern or a second signal level transition pattern depending on the logical value of the overhead bit".

In light of the above, it is respectfully submitted that at least one limitation of claim 54 is neither taught nor suggested by the cited art, whether taken severally or in combination. Therefore, Applicant respectfully submits that there is at least one criterion, required for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j), which is in this case not satisfied. The Examiner is thus respectfully requested to withdraw his rejection of claim 54.

### **3) Rejection of claims 22-26 and 29-38 under 35 USC 103**

In the Office Action, the Examiner has rejected claims 22-26 and 29-38 under 35 USC 103(a) as being unpatentable over Petsko et al. U.S. Patent No. 6,292,516 (hereinafter referred to as "Petsko") in view of Tsuda U.S. Patent No. 5,619,507 (hereinafter referred to as "Tsuda") in further view of Nakamura et al. U.S. Patent No. 5,857,092 (hereinafter referred to as "Nakamura"). As set forth herein below, Applicant respectfully disagrees and submits that claims 22-26 and 29-38 are in allowable form.

#### **Independent claim 22**

The Examiner's attention is directed to the following emphasized limitations of claim 22:

"A method [...], the method comprising the steps of:

**converting the composite optical signal into an electrical signal having an electrical bandwidth that is substantially less than the bandwidth of the high-speed data stream;**

**locating the position of each wrapper segment in the low-bandwidth electrical signal; and**

**detecting individual bits of the overhead bit stream from the average level of the low-bandwidth electrical signal during the located wrapper segments.”**

As conceded by the Examiner on pages 6-7 of the Office Action, Petsko does not disclose, teach or suggest the above-emphasized limitations of claim 22. In addition, Applicant respectfully submits that Tsuda fails to teach or suggest the above-emphasized limitations of claim 22. In fact, it is unclear why Tsuda was even cited in the rejection since the Examiner does not apply Tsuda in any way with regard to the limitations of claim 22.

Moreover, it is respectfully submitted that Nakamura also fails to teach or suggest the above-emphasized limitations of claim 22. Specifically, Nakamura relates to an interface apparatus for interconnecting apparatus of two different systems, namely, an apparatus of the SDH system and an apparatus of the SONET system. The interface apparatus of Nakamura includes a “light/electricity converting unit 141 [that] converts [an] STM-n signal (or STS-m signal) inputted through a transmission line (mainly an optical fiber) into an electrical signal” (col. 20, line 66 to col. 21, line 2). However, Nakamura does not further characterize the conversion performed by the “light/electricity converting unit”. In particular, Nakamura totally lacks any teaching or suggestion that the “light/electricity converting unit” converts the optical signal into “an electrical signal having an electrical bandwidth that is substantially less than the bandwidth of the high-speed data stream”. In fact, the Examiner only refers to Figure 8 and reference block #153 in Nakamura, which have absolutely nothing to do with an electrical signal having an electrical bandwidth that is substantially less than the bandwidth of the high-speed data stream. Hence, it is Applicant’s respectful submission that the above-emphasized limitation, absent from Petsko and Tsuda, is also completely lacking in Nakamura.

Furthermore, since Nakamura does not teach or suggest conversion of an optical signal into a low-bandwidth electrical signal, it follows that Nakamura cannot possibly teach or suggest “locating the position of each wrapper segment in the low-bandwidth electrical signal” and “detecting individual bits of the overhead bit stream

from the average level of the low-bandwidth electrical signal during the located wrapper segments". Again, the Examiner only refers to Figure 8 and reference block #153 in Nakamura which have absolutely nothing to do with these limitations. (Moreover, the Examiner has not referred to any of the cited references in an attempt to show that these two limitations have been taught or suggested.)

For the above reasons, it is respectfully submitted that at least three limitations of claim 22 are neither taught nor suggested by the cited art, whether taken severally or in combination. As such, Applicant respectfully submits that at least one criterion required for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j) is not satisfied. Accordingly, it is respectfully submitted that claim 22 is in allowable form and, thus, the Examiner is respectfully requested to withdraw his rejection of claim 22.

#### Dependent claims 23-26 and 29-31

Claims 23-26 and 29-31 depend either directly or indirectly on claim 22 and therefore include all of the limitations of claim 22. Hence, for the same reasons as those set forth herein above in respect of claim 22, Applicant respectfully submits that claims 23-26 and 29-31 are in allowable form and, thus, the Examiner is respectfully requested to withdraw his rejection of claims 23-26 and 29-31.

#### Independent claim 32

The Examiner's attention is directed to the following emphasized limitations of claim 32:

"A system [...], comprising:

a receiver for **converting the composite optical signal into an electrical signal having an electrical bandwidth that is substantially less than the bandwidth of the high-speed data stream;**



a wrapper segment identifier connected to the receiver, for **locating the position of each wrapper segment in the low-bandwidth electrical signal**; and

a detector connected to the wrapper segment identifier, for **detecting individual bits of the overhead bit stream from the average level of the low-bandwidth electrical signal during the located wrapper segments.**"

Claim 32 contains language similar to that of claim 22. Thus, for the same reasons set forth herein above in respect to claim 22, it is Applicant's respectful submission that independent claim 32 comprises at least three limitations missing from the cited art, namely "converting the composite optical signal into an electrical signal having an electrical bandwidth that is substantially less than the bandwidth of the high-speed data stream", "locating the position of each wrapper segment in the low-bandwidth electrical signal" and "detecting individual bits of the overhead bit stream from the average level of the low-bandwidth electrical signal during the located wrapper segments".

In light of the above, it is respectfully submitted that at least three limitations of claim 32 are neither taught nor suggested by the cited art, whether taken severally or in combination. Therefore, Applicant respectfully submits that there is at least one criterion, required for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j), which is in this case not satisfied. The Examiner is thus respectfully requested to withdraw his rejection of claim 32.

#### Dependent claims 33-35

Claims 33-35 depend either directly or indirectly on claim 32 and therefore include all of the limitations of claim 32. Hence, for the same reasons as those set forth herein above in respect of claim 32, Applicant respectfully submits that claims 33-35 are in allowable form and, therefore, the Examiner is respectfully requested to withdraw his rejection of claims 33-35.

Independent claim 36

The Examiner's attention is directed to the following emphasized limitations of claim 36:

"A system [...], comprising:

means for **converting the composite optical signal into an electrical signal having an electrical bandwidth that is substantially less than the bandwidth of the high-speed data stream;**

means for **locating the position of each wrapper segment in the low-bandwidth electrical signal;** and

means for **detecting individual bits of the overhead bit stream from the average level of the low-bandwidth electrical signal during the located wrapper segments."**

Claim 36 contains language similar to that of claim 22. Thus, for the same reasons set forth herein above in respect to claim 22, it is Applicant's respectful submission that independent claim 36 comprises at least three limitations missing from the cited art, namely "converting the composite optical signal into an electrical signal having an electrical bandwidth that is substantially less than the bandwidth of the high-speed data stream", "locating the position of each wrapper segment in the low-bandwidth electrical signal" and "detecting individual bits of the overhead bit stream from the average level of the low-bandwidth electrical signal during the located wrapper segments".

In light of the above, it is respectfully submitted that at least three limitations of claim 36 are neither taught nor suggested by the cited art, whether taken severally or in combination. Therefore, Applicant respectfully submits that there is at least one criterion, required for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j), which is in this case not satisfied. The Examiner is thus respectfully requested to withdraw his rejection of claim 36.

Dependent claim 37

Claim 37 depends directly on claim 36 and therefore includes all of the limitations of claim 36. Hence, for the same reasons as those set forth herein above in respect of claim 36, Applicant respectfully submits that claim 37 is in allowable form and, therefore, the Examiner is respectfully requested to withdraw his rejection of claim 37.

Independent claim 38

The Examiner's attention is directed to the following emphasized limitations of claim 38:

"A system [...], the system comprising:

**an optical tap coupler for coupling a fraction of the optical power of the WDM signal;**

**a front end connected to the coupler, for separating the WDM signal into the plurality of single-carrier optical signals;**

**a plurality of receivers connected to the front end, for converting each single-carrier optical signal into a respective electrical signal having a bandwidth that is substantially less than the bandwidth of the corresponding high-speed data stream;**

**a plurality of wrapper segment identifiers connected to the plurality of receivers, for locating the position of wrapper segments in each low-bandwidth electrical signal; and**

**a plurality of detectors connected to the plurality of wrapper segment identifiers, for detecting individual bits of the overhead bit streams from the average level of the corresponding low-bandwidth electrical signal during the located wrapper segments."**

Claim 38 contains language similar to that of claim 22. Thus, for the same reasons set forth herein above in respect to claim 22, it is Applicant's respectful submission that independent claim 38 comprises at least three limitations missing from the cited art, namely "converting each single-carrier optical signal into a respective electrical signal having an electrical bandwidth that is substantially less than the bandwidth of the corresponding high-speed data stream", "locating the position of each wrapper

segment in each low-bandwidth electrical signal" and "detecting individual bits of the overhead bit stream from the average level of the corresponding low-bandwidth electrical signal during the located wrapper segments".

In light of the above, it is respectfully submitted that at least three limitations of claim 38 are neither taught nor suggested by the cited art, whether taken severally or in combination. Therefore, Applicant respectfully submits that there is at least one criterion, required for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j), which is in this case not satisfied. The Examiner is thus respectfully requested to withdraw his rejection of claim 38.

In addition, Applicant respectfully submits that the cited art also does not teach or suggest "an optical tap coupler for coupling a fraction of the optical power of the WDM signal" and "a front end connected to the coupler, for separating the WDM signal into the plurality of single-carrier optical signals". (The Examiner has not even addressed these limitations in his rejection of claim 38). For this additional reason, it is once more respectfully submitted that at least one limitation of claim 38 is neither taught nor suggested by the cited art, whether taken severally or in combination and, thus, that at least one criterion for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j) is not satisfied. Accordingly, the Examiner is respectfully requested to withdraw his rejection of claim 38.

#### **4) Rejection of claim 53 under 35 USC 103**

In the Office Action, the Examiner has rejected claim 53 under 35 USC 103(a) as being unpatentable over Petsko et al. U.S. Patent No. 6,292,516 (hereinafter referred to as "Petsko") in view of Tsuda U.S. Patent No. 5,619,507 (hereinafter referred to as "Tsuda") as applied to claim 49 and in further view of Kolze et al. U.S. Patent No. 6,285,681 (hereinafter referred to as "Kolze"). As set forth herein below, Applicant respectfully disagrees and submits that claim 53 distinguishes clearly and patentably over the cited art.

### Dependent claim 53

Claim 53 depends directly on claim 49 and therefore includes all of the limitations of claim 49.

Now, it has already been argued that Petsko and Tsuda do not teach or suggest "mapping each overhead bit into a wrapper symbol which is represented by either a first signal level transition pattern or a second signal level transition pattern depending on the logical value of the overhead bit". Furthermore, it is respectfully submitted that Kolze also does not teach or suggest these limitations of claim 49. Rather, Kolze describes an apparatus for communicating data packets in variable length bursts over a physical layer in a multilayer data communication scheme, where each burst contains information data and overhead that includes forward error control data.

Therefore, it is respectfully submitted that at least one limitation of claim 49, and thus of claim 53, is neither taught nor suggested by the cited art whether taken severally or in combination. As such, Applicant respectfully submits that at least one criterion required for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j) is not satisfied. Accordingly, the Examiner is respectfully requested to withdraw his rejection of claim 53.

### **5) Objection to claims 27-28**

#### Dependent claims 27-28

In the Office Action, the Examiner objected to claims 27-28 as being dependent upon a rejected base claim (claim 22) but stated that these claims would be allowable if rewritten in independent form including the limitations of the base claim and any intervening claims.

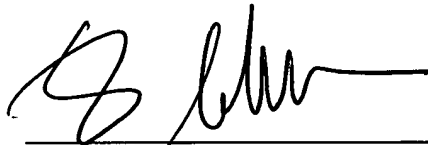
Claims 27-28 depend indirectly on claim 22 and therefore include all of the limitations of claim 22. Hence, for the same reasons as those set forth herein above in respect of claim 22, Applicant respectfully submits that claims 27-28 are in allowable form and do not need to be rewritten. The Examiner is respectfully requested to withdraw his objection to claims 27-28 on this basis.

### CONCLUSION

In view of the foregoing, Applicant is of the view that claims 1-54 are in allowable form. Favorable reconsideration is requested. Early allowance of the Application is earnestly solicited.

If the claims of the application are not considered to be in full condition for allowance, for any reason, Applicant respectfully requests the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims pursuant to MPEP 707.07(j) or in making constructive suggestions pursuant to MPEP 706.03 so that the application can be placed in allowable condition as soon as possible and without the need for further proceedings.

Respectfully submitted,



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